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*Computer Science Happenings at Queens College:*

**NEW TECH INCUBATOR FOR BOROUGH ENTREPRENEURS; PARTNERSHIPS WITH NYC, BUSINESS LEADERS & PUBLIC SCHOOLS & A PUSH FOR DIVERSITY**

Flushing, NY, September 26, 2016 – As the New York-area college with the largest number of undergraduates majoring in Computer Science—nearly 1,200 students as of fall 2016—Queens College is playing a leading role in tech initiatives and innovations to benefit students, the borough, and the city.

“There’s a lot of excitement in the field of computer science now,” says Christopher Vickery, a Queens College CS professor who has witnessed seismic changes over his decades of teaching. Those changes in the field, corresponding to society’s growing technological focus, have strongly impacted the CS department. Since 2008, its number of undergraduate Computer Science majors has increased nearly 250%, making Queens College the tech undergraduate campus in New York City.

Nationwide, more is being done to help students develop the skills needed for 21st century jobs in our tech-driven economy. Educators and industry leaders are taking steps to increase the diversity of those who seek CS careers, and more tech incubators are being established for budding entrepreneurs. In February 2016, New York City officials announced a visa program for international entrepreneurs who will work from CUNY business incubators. Among them is the new Queens College Tech Incubator, which officially opens on September 29, 2016.

“By educating such a large number of computer science students, the college is providing the fuel and talent to grow the tech community in New York,” says Jukay Hsu, executive director of the C4Q (Coalition for Queens), a nonprofit that he founded in 2011 to advance technology companies in the borough. “What’s great about Queens is that it’s the most diverse county in America, and QC’s student population mirrors that. As the city’s tech community continues to grow, the college’s computer science graduates will be entering the tech workforce, reflecting the multicultural richness of our community and our city.”

**Queens College Tech Incubator Will Serve the Borough’s Start-Ups**

The nonprofit Queens College Tech Incubator, created with funding from the New York City

Council, is a place where tech start-ups have already begun to develop their businesses using the college's extensive resources. Based in a newly renovated building on the Flushing campus, it is expected to draw entrepreneurs from nearby as well as points east and south, including Jamaica—areas that have not, until now, benefitted from the presence of tech incubators.

“Our interest is to help develop the Queens tech community,” says Ted Brown, a long-time CS professor and the incubator's executive director. “We will provide business and accounting advice, a variety of modernized spaces to lease, a server with large storage capacity, conference rooms, a lounge, 24/7 access, a dedicated incubator staff, and talented computer science students to work as interns—advantages that these business start-ups couldn't have at home.”

The incubator, which is partnering with Hsu's C4Q, the Queens Economic Development Corporation, and other business-oriented nonprofits in the borough, will also offer one-day seminars for the burgeoning local tech community.

Queens College students who have viable ideas for new tech businesses will also be eligible to use the on-campus incubator. “I see our incubator as an extension of a QC education,” Brown notes.

**For more information on the Queens College Tech Incubator**, visit [www.tiqc.nyc](http://www.tiqc.nyc), or contact managing director Weeks Mensah: [wmensah@quic.nyc](mailto:wmensah@quic.nyc).

“We want emerging tech businesses, including our student entrepreneurs, to use our tech incubator as a launching pad, which will in turn generate prosperity for the borough,” says Félix V. Matos Rodríguez, president of Queens College. “It will also connect the business community with our CS students and our faculty. The potential synergy is phenomenal.”

## **A College Pipeline for Tech Talent**

The **NYC Tech Talent Pipeline Academic Council**, announced by Mayor Bill de Blasio during Computer Science Education Week in December 2015, is designed to promote such relationships and expand pathways to careers in technology for New Yorkers. Queens College joined other CUNY colleges, along with such institutions as Cornell Tech, Columbia School of Engineering and Applied Sciences, and New York University Tandon School of Engineering, for the purpose of working with the City and employers to better align CS education and tech workforce needs through curriculum review, new programs and faculty-industry collaborations.

“Combining the academic strength of institutions like Queens College with the insight and economic potential of the tech industry is vital,” says Matos Rodríguez, who was named to the council.

Queens College is also participating in the **Tech Talent Pipeline Residency**—a collaboration between the [NYC Tech Talent Pipeline](#), the college and the [New York Code + Design Academy](#), a technology education provider with a mission to make learning to code accessible to all. So far, 50 selected QC students have taken part in this intensive pilot program,

which connects local talent to paid technical internships throughout New York City while gathering valuable feedback from host businesses on how to better align tech education with the workforce needs of NYC employers.

“The students are prepped for tech careers and are briefed on the software environment and tools used by their internship sites,” says Eva Fernández, acting assistant provost and assistant vice president for Excellence in Teaching and Experiential Education at QC. “They get practical experience, boosting their resumes and improving the likelihood of being hired after graduation. At the same time, we are getting feedback from students every step of the way that will help us design a better undergraduate CS experience. We want to ensure that Queens College CS graduates are well prepared for the field.”

### **Wanted: More Diversity in Computer Science**

Known for its strength in education programs and the liberal arts, Queens College created a stir when a 2011 *Wall Street Journal* article and graph revealed a startling fact: QC had over 400 computer science majors, which was more than Columbia University and NYU combined.

Although QC continues to lead New York-area colleges in its number of CS undergraduate majors, it shares a sobering statistic with colleges across America: 85% of CS majors are male, with Asian males represented in high numbers. Nationwide, other minorities can hardly be found in CS or the tech workforce. According to a survey by the Computing Research Association, only 3% of CS majors were black and 5% were Hispanic. In contrast, at Queens College 32% of CS majors are black, Hispanic or of multiple ethnicities (report by Association of American Colleges and Universities/Teaching to Increase Diversity and Equity in STEM).

As one of the most diverse campuses in America, Queens College nurtures talented people of all ethnicities and backgrounds. “Increasing the diversity in computer science is consistent with our mission,” says Matos Rodríguez. “As the tech field grows, a varied workforce is needed to tap a full range of creative ideas, better communicate with consumers and increasingly, connect globally.” Queens College is facing this challenge several ways.

Thanks to a three-year grant from the American Association of Colleges and Universities (AACU), QC is part of a nationwide network dedicated to improving access to computer science for women and minorities not now represented in the field. “We need to turn the tide,” says Fernández. For two summers, she and QC colleague Chris Vickery, who jointly applied for the grant, met with other educators in Washington, D.C., to learn how to make the teaching of CS more engaging and student-focused.

Change is playing out in Vickery’s “Information and Intelligence,” a freshman-year course fulfilling a science requirement that used to have an 80% male enrollment. Now the number of female students is on a par with the number of males. Vickery attributes the dramatic shift to a hands-on approach. For example, students worked with tiny inexpensive computers—designed by a female engineer from M.I.T.—that can be sewn onto clothing. The code they wrote activated lights when the wearer moved, creating a sparkle effect. During the process, the

students consulted with faculty choreographers in the Department of Drama, Theatre and Dance on these high-tech costumes.

Calling this interdisciplinary project an example of “deeply experiential learning,” Fernández adds, “We want to get students interested in pursuing CS beyond the intro course.”

### **Developing a Degree to Teach Computer Science in High School**

Says Vickery, “The push is to get computational thinking at all levels—to teach CS from kindergarten through graduate school.”

Consequently, Queens College has developed a master’s degree program in the Education Division for teaching computer science at the high school level. It already has been approved by the college’s academic Senate, which reviews all curricula. Ultimately, the new degree will be considered by the New York State Department of Education, whose approval is required. College administrators have been in close contact with city and state officials and are on track to achieve this goal. Ideally, a master’s degree to teach CS to middle school students and even at the elementary level will eventually follow.

### **Building Computer Science Bridges to NYC Public Schools**

Meanwhile, Professor Zhigang Xiang, chair of QC’s Computer Science Department, reports that the college has strengthened its relationship with the Academy for Software Engineering, a public high school in Manhattan with a large minority student population. As of January 2016, Academy graduates who have an average of 85 or higher and have passed AP Computer Science courses can be admitted to QC and receive up to nine college credits for those courses.

In addition, for several years the science-focused Queens School of Inquiry has been enrolling its students in a QC introductory CS course on campus. Some Queens School of Inquiry graduates are now enrolled at Queens College as CS minors or majors. (In CS, the college offers both a BA and a BS; the latter degree requires four more courses.)

### **Computer Science Faculty the Heart of Department’s Strength**

“Hiring excellent teachers and scholars is essential for our department,” says Xiang. The faculty has expertise in cutting-edge areas of CS including algorithms, analytics, artificial intelligence, complexity, computational geometry/topology, computer vision, database systems, datamining, game theory, machine learning, modeling, natural language processing, programming languages, quantum computing, networking, security, and visualization. Over a six-year period, five QC faculty members in CS received the prestigious National Science Foundation Early Career Award for Junior Faculty in Higher Education—a CUNY record.

The CS Department also houses a Center for Computational Infrastructure for the Sciences. With faculty members from eight departments, including Sociology, the center promotes “cross-fertilization” on projects that depend heavily on computation.

“Computer science is not a standalone field,” notes Xiang. “Many projects are being done by scientists outside our department with the help of CS students. We will continue to grow this center, leverage our strengths and make computation a large part of what is happening on campus.”

## About Queens College

Queens College enjoys a national reputation for its liberal arts and sciences and pre-professional programs. With its graduate and undergraduate degrees, honors programs, and research and internship opportunities, the college helps its nearly 19,000 students realize their potential in countless ways, assisted by an accessible, award-winning faculty. Located on a beautiful, 80-acre campus in Flushing, the college is cited each year in the Princeton Review as one of the nation’s 100 “Best Value” colleges, and also is ranked a U.S. News and World Report Best College and Forbes Magazine Best Value College, thanks to its outstanding academics, generous financial aid packages, and relatively low costs. Learn more at [www.qc.cuny.edu](http://www.qc.cuny.edu).

